The Old School, Brewhouse Hill, Wheathampstead,
Hertfordshire AL4 8AN, UK
www.ufaw.org.uk

Animal Welfare 2019, 28: 443-454
ISSN 0962-7286
doi: 10.7120/09627286.28.4.443

Long-term hyperalgesia and traumatic neuroma formation in tail-docked lambs

C Larrondo*†, H Bustamante‡, E Paredes§ and C Gallo#

† Escuela de Graduados, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Independencia 631, Valdivia, Chile
‡ Instituto de Ciencias Clínicas Veterinarias, Universidad Austral de Chile, Independencia 631, Valdivia, Chile
§ Instituto de Patología Animal, Universidad Austral de Chile, Independencia 631, Valdivia, Chile
# Instituto de Ciencia Animal, OIE Collaborating Centre for Animal Welfare and Livestock Production Systems-Chile, Universidad Austral de Chile, Independencia 631 Valdivia, Chile
* Contact for correspondence: cristian.larrondoc@gmail.com

Abstract

This study aimed to determine if tail-docking induces long-term hyperalgesia, chronic pain and histopathological changes in tail stumps of tail-docked lambs. Fifty male lambs of 45 days of age were randomly allocated in two groups. One group of 25 lambs was tail-docked using a hot cautery iron and a second group of 25 lambs was subjected only to handling as a control group (undocked lambs). Prior to tail-docking and at intervals of 15, 30, 60 and 90 days after the procedure, infra-red thermography (IT) and mechanical nociceptive thresholds (MNTs) tests were carried out in both lambs' tails/stumps, and animals were weighed. In addition, the visual degree of inflammation of tail stumps was evaluated. Finally, animals were slaughtered in a commercial slaughterhouse and tail sections of ten lambs from each group were examined histopathologically. Tail-docking was associated with an inflammatory process according to IT and visual observation in tail stumps at 15 and 30 days post-docking. Tail-docked lambs had lower MNTs than undocked lambs at all evaluated times after tail-docking, indicating the presence of long-term hyperalgesia. Also, traumatic neuroma formation was found in tail stumps of 2/10 tail-docked lambs, and 6/10 presented neuromatous tissue development. It is concluded that tail-docking induces acute and chronic pain in lambs, initially through inflammation, and then via long-term hyperalgesia and traumatic neuroma formation. These long-term findings would have negative implications for the animal welfare of tail-docked lambs.

Keywords: *animal welfare, chronic pain, hyperalgesia, lamb, neuroma, tail-docking*